

In 1991, a Memorandum of Agreement (MOA) was signed by the USDA Forest Service (Region 3), U.S. National Park Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management (Arizona and New Mexico), U.S. Bureau of Indian Affairs, and the States of Arizona and New Mexico. This Agreement established the Southwest Fire Management Board, enhanced the Joint Powers Agreements in place at the time, and provided the direction to plan, prioritize, and implement the coordination of policies, directions, and standards for fire management activities in the Southwest Area (SWA). It also detailed that the land management agencies within the States of Arizona and New Mexico, as well as western Texas and Oklahoma, would work collaboratively to plan for wildland fire emergency responses that would be as efficient and cost effective as possible.

This interagency report is provided as a means to summarize wildland fire activities during 1998. It provides highlights of the 1998 fire season from an agency perspective, wildland fire activity statistics, fire cache reports, and overall information on the mobilization of incident management teams, crews, overhead, and equipment to incidents in the southwest and other parts of the United States. The report does not include operational aspects of firefighting, specifically firefighting tactics, equipment usage, training, or other managerial activities of suppressing wildfires in the SWA.

As you will see from the information provided, the 1998 fire season in the SWA fell within the below to normal range for fire activity in the southwest. Overall, there were 3,466 person-caused and 1,467 lightning caused fires for a total of 4,933 wildland fires in 1998. Total acreage burned was 185,027. The Energy Release Component (ERC) chart showed a steady climb of fire activity potential through the months of May and June. However, initial attack and large fire activity remained in the normal range through the season. Only two incidents occurred in the SWA which required the mobilization of an Area Type I Incident Management Team. Throughout the year, a significant number of SWA resources were mobilized to other geographic areas of the country, primarily Florida and Texas.

Unfortunately, there were three fatalities related to firefighting in 1998. Two fatalities occurred on the Gila National Forest, when an air tanker crashed after dropping retardant on the Leggett Fire, and a third fatality occurred to a Lincoln National Forest employee, while enroute to a fire in California. The firefighting family of the Southwest Area extends its condolences to the families of these courageous people.

Finally, a lot of people put a tremendous amount of energy into providing the information in this report. Our thanks go out to each and every one of them.

The Southwest Fire Management Board (SWFMB) dealt with a number of fire management issues during 1998 as follows:

The Board was able to field two Type I Interagency Incident Management Teams for the 1998 fire season.

The Board continued to implement the Federal Fire Policy Review Action Items into interagency fire suppression activities within the geographic area.

The Board continues to be concerned with the shrinking resource pool of qualified fire suppression personnel within the Southwest Area and has undertaken an evaluation process to identify how Agency Administrators can be encouraged to provide more support from within their respective agencies to support fire suppression activities.

After the 1999 fire season, the Board will evaluate if it will be able to field two Type I Interagency Incident Management Teams for the 2000 fire season.

The Southwest Area Type I Interagency Incident Management Teams was only called out three times within the geographic area during the 1999 fire season.

The Board selected candidates from agency nominations for the Advanced Incident Management S-520) course that was held January 31-February 12, 1999 at the National Advanced Resource Training Center at Marana, Arizona. The Southwest Area candidates were the only Geographic Area, which had all of their candidates successfully complete S-520.

Frank Smith
(New Mexico State Forestry)
Chairperson
Southwest Fire Management Board

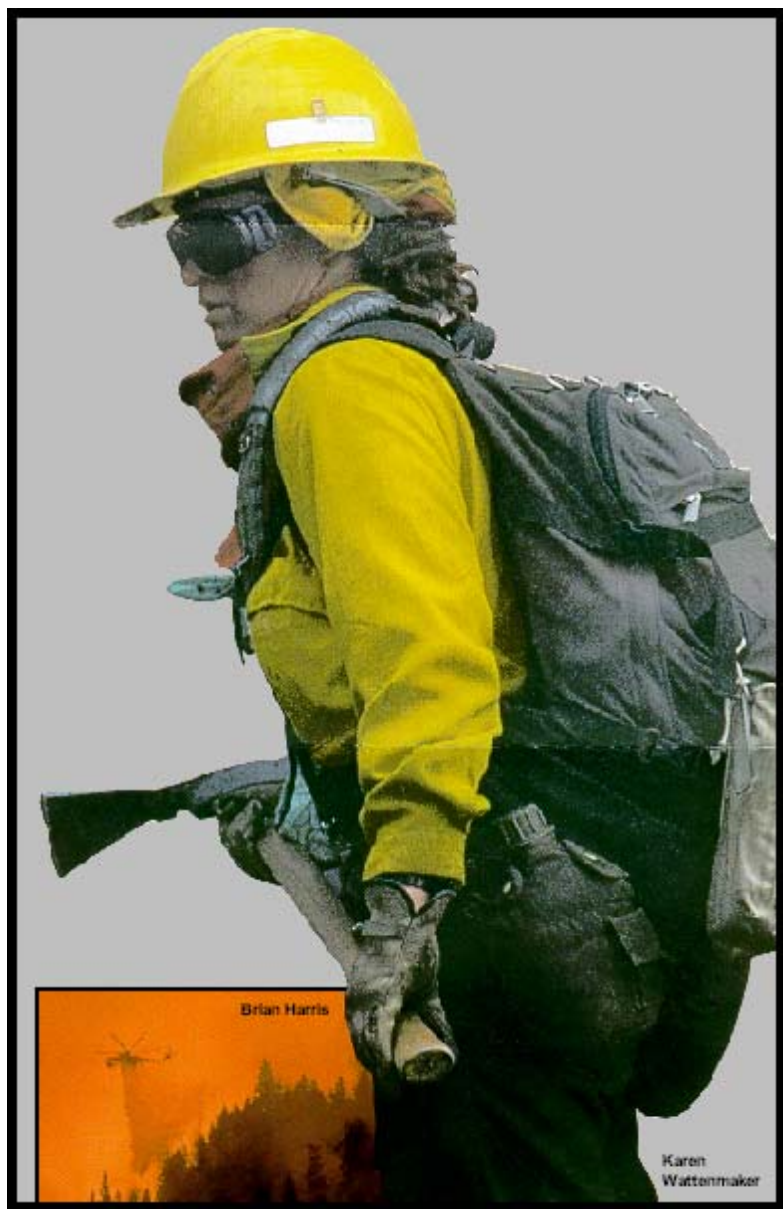
**S
O
U
T
H
W
E
S
T

F
I
R
E

M
G
M
T

B
O
A
R
D**

AGENCY HIGHLIGHTS



**USDA Forest Service
Region 3
Southwestern Region**

The 1998 wildland fire season was very busy for the USDA Forest Service, Southwestern Region (R3), although most of the activity occurred outside of the Southwest Area. The season started with a number of firefighters and overhead personnel being mobilized to assist in Mexico, Guatemala, and Canada. As the year progressed, personnel were sent to Minnesota, Texas, Florida, California, Idaho, and Montana. At one point, more than 100 engines were supporting fire activity in Texas.

Within the Southwestern Region, a total of 1,526 fires and 6,975 acres were burned. These numbers were well below the ten-year average of 2,049 and 96,504, respectively. There were two Type I Incident Management Team and three Type II Incident Management Team call-outs during the year on National Forest lands within the region. The Type I teams were called-out to the Gila and Santa Fe National Forests and the Type II teams were called-out to the Carson, Coconino, and Gila National Forests.

The Prescribed Natural Fire (PNF) program was at a very low level during 1998 compared with the recent past. This was primarily due to the lack of natural ignitions.

Unfortunately, there were three fatalities related to firefighting in 1998. Two fatalities occurred when an air tanker crashed after dropping retardant on a fire on the Gila National Forest and one fatality occurred when an engine from the Lincoln National Forest was enroute to a fire in California.

Several staff changes and retirements also occurred during the year. John Merino became the Fire Staff Officer for the Cibola National Forest and Rich Wands became the Fire Management Officer for the Santa Fe National Forest. Bill Russell, former Region 3 Aviation and Fire Management Assistant Director and National Fire 21 Coordinator, Bill Allred, pilot, Steve Makowski, Assistant Area Coordinator, and Beale Monday, Fire Management Officer for the Kaibab and Coconino National Forests retired at the end of 1998.

*Charlie Denton
Assistant Director for Operations
Aviation and Fire Management*

**National Park Service
Intermountain Region
Southwestern Parks**

The past year was very busy and productive for the Intermountain Region Fire Management Program. The Denver Office welcomed Cliff Chetwin, former Southwest Region Fire Management Officer in Santa Fe, to the Regional Aviation and Safety Specialist position. The office also welcomed Tim Sexton, from the Winema National Forest in Oregon, to the staff as one of two Deputy Regional Fire Management Officers. On the down side, the program lost Ben Espinoza of the Santa Fe office

to another division in Santa Fe office. The Denver Fire Management Program was officially reorganized into the Branch of Fire and Aviation.

During the course of the year, a number of the parks within the region explored opportunities to implement the Federal Wildland Fire Policy. Several variations emerged, but overall, it was found that the policy worked well, allowing flexibility in decision making and implementing strategies. Notable examples occurred throughout the region including Grand Canyon National Park in the Southwest.

Prescribed fire productivity within the region doubled last year over previous years. Multiple landscape scale treatments were implemented, several crossing interagency boundaries. These included projects in the Southwest at Chiricahua National Monument, Saguaro National Park, Guadalupe Mountains National Park, El Mapais National Monument, Grand Canyon National Park, and Bandelier National Monument. It appears that park programs around the region are scaling up to take on increasingly more sophisticated and complex projects involving large project management organizations, advanced prescription development and refined treatment objectives. This has been greatly facilitated by the greater availability of fuels funding.

The regional fire effects program advanced over the course of the last year as well. At Big Bend National Park, John Zubia was hired as the Lead Fire Effects Specialist. Throughout the Intermountain Region, a total of 243 plots were installed in 1998, bringing the total of plots within the region to 1458 (this includes 891 Non-FMH Plots). Plots in the Southwest include:

	Plots Installed	Plots Revisited	Total Plot Visits
BAND	33	87	120
BIBE	31	11	42
GRCA	5	31	36
SAGU	17	42	59

Dan O'Brien
Regional Fire Management Officer

Bureau of Indian Affairs
Tri-Area Offices
Albuquerque, Navajo, Phoenix Area's

The Southwest Area is represented by the Bureau of Indian Affairs (BIA) Tri-Area Offices located in Albuquerque, Navajo, and Phoenix. There are four personnel who are located at the Southwest Coordination Center in Albuquerque. I am a BIA Assistant Director. Ron Matt is an Area Coordinator responsible for the mobilization, reassignment and demobilization of resources between home units and incidents in and outside the Southwest Area. Steve Rossiter is the Tri-Area Aviation Specialist coordinating with the three Area Offices and the interagency partners on procedural aircraft operations, training and accident investigations. And, Steve Larrabee is the Regional Fire Planner providing technical assistance and oversight of fire management planning activities for the Southwest Area.

Overall, the 1998 fire season was below normal in fire occurrences and total number of acres burned. As a result, Southwest Firefighter (SWFF) crew fire dispatches within and outside of the Southwest Area were very low.

Albuquerque Area

The Albuquerque Area Office's 1998 fire season was below normal for the fire management programs. Due to the above normal precipitation, burning conditions were below normal for initial attack activity and experienced little fire activity. Statistics show that, Area-wide, for all Indian Trust lands the number of fires reported was 400 wildland fires with a total of 5,000 acres burned. Southwest firefighter (SWFF) crews were dispatched to a number of fires throughout the season. However, total crew revenue, a vital source of income for tribal members, was well below normal. The BIA agencies concentrated on providing additional fire training to their SWFF crews and refurbishment of fire equipment.

The Albuquerque Area Office welcomes Eva Wilson to her new position as a dispatcher at the Albuquerque Zone Coordination Center. Ms. Wilson comes to the SWA from the Billings Interagency Dispatch Center in Montana.

Navajo Area

The Navajo Area Emergency Firefighting Program responded to twelve out of region assignments for a total of 24,635 man-hours and \$230,739.00 in wages during the summer of 1998. The program was also utilized in 91 local assignments for a total of 28,672 man-hours and \$264,323.00 in wages. The Area also acquired funding for a new Fire Use Specialist position to direct the Hazardous Fuels Reduction Program. In addition, the Area participated in the initial year of the Southwest Fire Use Training Academy and had one employee complete the training.

The Model-52 Engine Program has been continuing, with the acquisition of 2 engines with expected delivery during the spring of 1999. Three new RAWs units were installed during the year and the expectation of two additional units shortly will enable a more thorough coverage of the Area. The Fire Management Planning Analysis for the Navajo Area was also approved in 1998. The implementation will be online prior to the 1999 fire season.

Phoenix Area

Over 1,316 wildland fires burned a total of 6,978.2 acres of Indian Trust lands within the Area. The Phoenix Area Office, agencies, and tribes provided 287 support actions consisting of crews, overhead, equipment and training to support the wildland fire efforts at the area, regional, and national level. The Phoenix Area also completed a total of 45,661 acres of prescribed fire and hazard fuels reduction projects in Fiscal Year 1998.

The Area had two wildland fires, which required emergency rehabilitation during the fire season. One of these fires was the 250-acre Palm Fire located within the Colorado River Agency. A Burned Area Emergency Rehabilitation (BAER) plan was completed detailing the restoration of habitat for endangered and threatened fauna. The project was approved as a pilot project through the new Department of Interior's BAER policy, which is designed to accomplish rehabilitation of riparian areas. The other fire was the Pachoos Fire. The Southern Paiute Field Station completed an Interagency BAER plan in conjunction with the BLM Dixie Field Office for the rehabilitation of BLM lands and 400 acres of Shivait's Tribal lands. The completion of the project was fully funded for both agencies through the BLM, using an Interagency Rehabilitation Plan.

The San Carlos Agency had an outbreak of man caused fires during the fire season. An Interagency Prevention Team was requested to assist. The team was very successful in reducing the number of human caused ignitions.

The Phoenix Area Office filled the Assistant Area Fire Management Officer (AFMO) position with Leon Ben, Jr. Leon worked for the San Carlos Apache Tribe prior to filling the AFMO position. In addition, the Phoenix Area Office filled the Fuels Management Specialist position with Keith Burnette. Keith worked for the Sacramento Area Office as the Riverside Agency Fire Management Officer prior to coming to Phoenix.

Willie Begay
Assistant Director
Tri-Area Fire Management

Bureau of Land Management
Arizona State Office
Fire and Aviation Group

BLM-Arizona entered the 1998 fire season with a potential problem in the southeast and northwest part of the state. The effects of El Nino resulted in above normal precipitation in these areas. The resulting annual growth was less than expected but above normal. Our fire season ended up less than average. This was partly due to less than normal lightning activity and higher humidity in the desert area. BLM-Arizona ended up making 333 total fire responses burning 19,169 total acres.

	1998	10 year average
Fires	288	333
Acres burned	1802	19,169

Arizona Strip

The Arizona Strip fire staff continues to develop interagency cooperation with the Dixie National Forest and the Dixie Resource Area of the Cedar District, BLM. The Arizona Strip is now responsible for fire management on BLM lands in Washington County, as well as the Pine Valley Ranger District of the Dixie National Forest. This agreement will shift fire logistics out of the Southwest Geographic Area to the Eastern Great Basin Geographic Area beginning with the 1999 season.

Improvements to the Pakoon airstrip were completed and the contract for drilling a well for a water source was awarded. The Pakoon airstrip and future base is critical in meeting fire management objectives in the Sonoran desert.

Phoenix/Kingman

The fire staff continues to develop the air center and single engine airtanker base at the Kingman airport. The base, while used in 1997, had a greater retardant capability and established ready room for the 1998 fire season.

Safford/Tucson

Safford fire staff is providing national technical assistance for the Single Engine Airtanker (SEAT) Program. Their expertise has been used to develop a SEAT Managers Guide and an associated training course. They continue to improve a model SEAT reload base at the Safford Airport.

Yuma/Lake Havasu

The Yuma/Lake Havasu Field Office fire staff is improving cooperation with other Department of Interior agencies and the Arizona State Lands Department. The Department of Interior agencies (i.e. BLM, U. S. Fish & Wildlife Service, and the Bureau of Indian Affairs) are combining fire staffs in an interagency effort. BLM-Yuma/Lake Havasu is proving the Fire Management Officer with BIA Agencies providing the Fire Control Officer. The Colorado River Zone will merge with the Central Arizona Zone for the 1999 fire season.

National Mobilization

BLM-Arizona contributed to the national suppression effort in 1998 by supplying engines, overhead, and GIS technical support. The majority of support was for suppression activities in Texas. BLM-Arizona supplied engines, Single Engine Airtanker managers, dispatchers, and GIS technical expertise. Most of these resources were rotated out after 21 days and refilled by BLM-Arizona for a second 21-day tour.

BLM-Arizona is an active interagency partner in the southwest. One of two Type I team's from the Southwest were mobilized at a request by FEMA to assist in the Florida hurricanes. This was not the first time that a Southwest Area fire team and overhead have been utilized for disaster relief.

The Central Arizona Type II team, which BLM-Arizona provides the Incident Commander and various other overhead, was assigned to an incident in North Carolina. Upon returning home, the team was given excellent reviews. The team was able to mobilize in less than 48 hours upon call-out. This, after it had been disbanded for the year in the southwest.

International

BLM-Arizona has been an active partner with Mexico. BLM-Arizona hosted a delegation of fire managers from Mexico in which a presentation and tour was given of the fire program in the Southwest. The state FMO has been active with the BLM National Office and Mexico, by attending meetings both in the United States and Mexico. Cooperation between Mexico and the United States continues to grow. The Safford/Tucson FMO went to Mexico to learn and assist in their fire management program. BLM-Arizona also provided helicopter operation assistance during Mexico's large fire season.

Fuels Management

BLM-Arizona completed a very successful first year of the 2823 Program. A total of 11 prescribed burn projects were completed for 23,375 acres treated. In addition, two mechanical treatments for 50 acres were completed.

Al Alavarez

State Fire Management Officer

**Bureau of Land Management
New Mexico State Office
Fire and Aviation Group**

A combination of weather factors kept the '98 fire season for Bureau of Land Management in New Mexico moderate. Rains fell in late winter and early spring, and the spring was less windy than usual. Throughout the fire season, the relative humidity was slightly higher than average and the temperature was slightly lower than average. In addition, the State did not receive extensive dry lightning. The moderate conditions hindered some of our prescribed fire activities. BLM-New Mexico had several burns planned that required hot, dry conditions to take out pinyon/juniper stands. Due to being out of prescription a couple of these had to be re-scheduled. Still, BLM-New Mexico managed to get the second highest number of acres treated in all the BLM.

BLM-New Mexico personnel took part in a number of out-of-state assignments. We sent an infrared interpreter and advisor to Mexico and Guatemala during a catastrophic fire bust in the spring. Personnel from the State Office and the Roswell Field Office were called upon for relief assistance during a major blizzard in the southeast part of the state when the Governor issued Declaration of Emergency. Firefighters were sent to Alberta, Canada, as well as Florida for hurricane relief efforts. Personnel were sent as part of the National Type I team, dispatchers and coordinators, and in other support positions. We had firefighters in Texas during the sustained drought that lasted from March through September, and after fire season dropped off in the Southwest Area, most of our engine crews were detailed to other states for at least one tour.

Changes in the BLM-New Mexico organization brought about a number of changes in the fire program. The Taos Field Office has become a partner in the Taos Zone and funding has been approved to hire a dispatcher in Taos Zone Coordination Center for the '99 season. There will be a full-time FMO and fire crew in the Farmington Field Office. A prescribed fire specialist position for the State Office staff has been advertised, and that person should be on board by late spring. Irene Mora was selected for the BLM dispatcher position in the Albuquerque Zone Coordination Center, which now serves as the initial attack dispatch center for the Albuquerque Field Office. Dusty Voss retired from his position at the Southwest Coordination Center.

A major challenge for the 1999 season will be maintaining a strong, effective suppression organization to protect the public and natural resources, while working actively to restore fire to the landscape. Like the other agencies, BLM is having trouble meeting our needs for additional firefighters and overhead from the non-fire ranks. Unless there are some major changes soon in Bureau-wide hiring trends, we may find ourselves unable to staff fires as we used to. In that event, finding new ways to manage fires, especially large ones, will present us with one of the greatest challenges of recent times.

*Bob Lee
State Fire Management Officer*

**U. S. Fish & Wildlife Service
Region 2
Southwest Region**

Wildland Fire Operations

New Mexico Stations

Refuges in New Mexico recorded five wildfire incidents for a total of 1,205 agency acres burned. A wind driven lightning caused fire on the Sevilleta NWR was controlled at 1,200 acres. A Type III Incident Management Team, two Type II crews, and five engines were assigned to the incident.

Arizona Stations

Refuges in Arizona recorded 10 wildland fire incidents for a total of 2,931 agency acres burned. The South Dike Incident began on Sunday, July 5, 1998. The initial attack was unsuccessful and additional resources were ordered and operated for one burning period as an extended attack operation. The extended attack, under the direction of an ICT3, was also unsuccessful. Finally, on Monday, July 6, the Northern Arizona Type II Incident Management Team was ordered to the incident.

7/7/98 News Release: **Wildfire Rages Along Colorado River** Mohave Valley, AZ. Two days ago, firefighters began attacking the "South Dike Fire," on the Havasu National Wildlife Refuge, 6 miles south of Needles, on the Arizona side of the Colorado River. High temperatures, heavy fuels and gusty winds hindered suppression efforts. Flames of more than 50 feet high raced over the hills, till the blaze consumed over 2200 acres of significant wildlife habitat by 5:00 am this morning. This area is a very important nesting spot for the endangered Southwestern Willow Flycatcher. The fire is burning near the River in heavy salt cedar, arrowhead weed and mesquite in an area that is difficult to reach. So far, over 140 firefighters and support personnel haven been sent to the fire. Four bulldozers, 3 helicopters, and 2 air tankers will be helping today's efforts. No evacuations have been ordered and local homes are not yet threatened. However, since this fire has been burning so intensely and has covered ground quickly, firefighters are watching the fire's progress very closely.

Prescribed Fire Operations

Prescribed Fires	Acres
12	18,600

New Mexico Stations

May 1998 Fish & Wildlife News: Rx: Fire----Interagency Effort Gets the Job Done

More than 100 firefighters conducted a highly successful prescribed burn this March on Bitter Lake NWR in southeastern New Mexico. Carried out on about 10,000 acres of grassland and upland shrub habitat in the Salt Creek Wilderness, the burn was a routine exercise designed to maintain the "brush-free" character of the native perennial grasslands by halting the invasion of mesquite and controlling the spread of exotic salt cedar. The burn would not have taken place, however, had it not been for an unprecedented cooperative effort involving several federal agencies and a local firefighting team. Personnel from Dexter National Fish Hatchery and Technology Center, the U.S. Forest Service, the National Park Service, the Bureau of Indian Affairs, the Bureau of Land Management and the Town of

Berrendo Volunteer Fire Department assisted eight Service fire management teams from four southwestern states

Arizona Stations

he prescribed burning season at Buenos Aires began on May 18th and continued through June 1st with 10 units being treated. The target number of acres was 12,939. Sixty six percent, or 8,504 acres, were successfully burned.

Mike Phillips
Regional Fire Management Coordinator

Arizona State Land Department Fire Management Division

Once again, the number and acreage of wildland fires during 1998 were well below the five-year average. A late surge of "El Nino" weather in the spring didn't allow for the fire season to start until well into mid-May. The season suddenly ended July 4th with wide spread moisture throughout the state. Through aggressive initial attack and utilization of air resources, those fires, which did start were easily handled. The 740-acre Kirkland Fire, located southwest of Prescott and in which Scott Hunt was the Incident Commander, was the largest fire suppressed during the year.

The agencies biggest task during 1998 involved supporting our federal and state partners. 143 requests for assistance were processed. These requests involved overhead, equipment, aircraft, and other logistical support. In addition to supporting request for resources in Texas, Florida and other states, the Division processed emergency orders for Emergency Medical Technicians for the efforts in Mexico. Not since the Yellowstone Fires of 1988, has the State of Arizona seen such a demand for our resources.

Breakdown of large fire activity:

Power Fire	135 acres	Dick Ferdon, IC
Riverside Fire	100 acres	Scott Hunt, IC
Ranch Fire	100 acres	Tom Warfield, IC
Peart Fire	120 acres	Scott Hunt, IC
Continental Fire	100 acres	Brian Lauber, IC
Kirkland Fire	740 acres	Scott Hunt, IC

Dave Behrens
Fire Management Division

State of New Mexico

Forestry and Resources Conservation Division

The fall of 1997 and the winter of 1998 yielded normal precipitation for most of New Mexico. The month of January 1998 was warmer than normal with normal winter precipitation absent. Northeastern New Mexico did not receive the fall and winter moisture that the remainder of the state experienced. Spring winds began blowing over the state during the month of February and continued well up into the month of June. During this time period winds repeatedly reached and sustained velocities of 25-40 mph. Although most of the state continued to receive some precipitation through early May, the northeastern quarter of the state was rapidly drying out from the lack of precipitation.

The first major wildland fire on lands under the protection responsibility of the Energy, Minerals and Natural Resources Departments Forestry Division occurred on May 10, 1998. The wildland fire, Beard, started from a lightning strike on the Philmont Scout Ranch northwest of Cimarron, New Mexico and was fanned by 25-35 mph winds. Although the fire did not threaten any structures or communities, it rapidly spread into commercial timberlands and threatened adjacent private lands. The New Mexico Type II Incident Management Team was ordered to manage the fire. Before being extinguished, the fire had burned 4,323 acres of Ponderosa pine and burned onto the Vermejo Ranch and the Valle Vidal Unit of the Carson National Forest.

The month of June was hot, dry and windy. On June 21, 1998, a human caused fire broke out west of the Village of Angel Fire and escalated rapidly to a crown fire in mixed conifer. The fire was named the Osha Fire and a Type III Extended Attack Team from the Taos Zone took over management of the fire, which was a threat to the Village of Angel Fire. The Osha fire burned 29 acres on private land, 49 acres on Forest Service land and 54 acres on municipal lands before being controlled at 132 acres. On June 26, 1998 a second human caused fire, the Zia fire, started in mixed conifer on Village of Angel Fire and was fanned by high winds. The Taos Zone Type III Extended Attack Team managed the fire, which burned a total of 65 acres on Village of Angel Fire lands. The fire threatened 2 homes but no structural damage resulted.

The State Forester issued Level I Fire Restrictions (smoking, campfires and open burning) for private and state lands in New Mexico on June 19, 1998. The fire restrictions were lifted on July 9, 1998, after the annual monsoon rains had become established.

The New Mexico Energy, Minerals and Natural Resources Department's Forestry Division took action on **1,172 wildfires** during calendar year 1998. The Division dispatched suppression resources to **1,117** statistical wildfires on state and private lands, which burned a total of **123,748** acres of New Mexico's wildland resources. The primary cause of these wildfires fell under the category of miscellaneous, with 393 fire incidents burning 47,531 acres. The second largest cause of wildland fires fell in the category of lightning with 341 fire incidents burning 51,366 acres. The third largest cause was debris burning with 173 fire incidents burning 11,765 acres.

Although 121,748 acres of State and private land were burned in New Mexico by wildfires in 1998, resource loss was minimal. This is primarily because over 77% of the acreage burned were in non-commercial forest and grassland fuel types. Economic loss to farmers and ranchers was minimal since the majority of the fires occurred after the grazing season or before the spring green-up.

The Forestry Division provided support to and committed personnel to the Southwest Area's Type I and New Mexico's Type II Interagency Incident Management Teams. The Division had five employees on the Type II team, and two employees on the Type I teams.

The Forestry Division continued to actively train rural fire departments (RFD) in wildland fire suppression, presenting 53 courses on wildland fire suppression to fire departments during 1998. The Division assisted in the training of fire departments in the use of foam for both wildland and structural fires. The Division assisted four new RFD's in organizing and becoming recognized by the New Mexico State Fire Marshal's Office.

The Forestry and Resources Conservation Division acquired eight new Crew Carriers during 1998 to be used with the Division's Inmate Work Camp established at Los Lunas, New Mexico during 1997. During 1998 the Division utilized Inmate Work Crews (IWC) on one fire on private land in northeastern New Mexico and two fires burning on private land in the Rio Grande Valley, south of Albuquerque.

Frank Smith
Chief, Fire Management Division

**National Weather Service
Weather Service Forecast Office
Phoenix Area Office**

Summary of weather prior to and during the fire season in Arizona from winter 1997 through autumn 1998

The El Nino was a well-advertised event that was supposed to bring much precipitation to Arizona during the winter months. This was not apparent during the early winter months, with precipitation was generally below normal and temperatures relatively mild. During this period the storm track had a tendency to stay north of the state. However, as the winter progressed into February, the expected heavy precipitation started to occur, as several strong storms plummeted into the state. These storms brought heavy rain to the deserts and heavy snow to the mountains. Some areas in northern Arizona had over 60 inches of snow during this month. The wet weather continued into the month of March as well, as more Pacific storms pushed into the Southwest. Some mountain stations reported in excess of 40 to 50 inches of snow during the month of March. Because of the cloud cover and precipitation, daytime temperatures remained rather cool during the latter part of winter.

Spring wasn't particularly wet, but the stronger than normal westerlies brought rather cool systems into the region. What stood out during the spring months was not the amount of precipitation, but rather the coolness of the period. Several desert locations failed to reach 60 degrees during the month of May for the first time in several years. This relatively cool air was caused by the continuation of Pacific weather systems moving into the Southwest. Normally the westerlies pushed back up to the north by May, but this year saw the westerlies stronger than normal, perhaps because of the El Nino.

This cooler than normal weather pattern continued through the early summer months. The month of June turned out to be one of the coolest Junes on record for many areas. While the stronger than normal westerlies kept temperatures down, it also prevented the monsoon pattern from developing by keeping the normal southeast wind flow from developing. In fact, even the northern interior of Mexico saw below normal thunderstorm activity in late June. This is where our monsoon moisture comes from. By mid summer, monsoon moisture started to develop over the Sierra Madres in Mexico. This moisture finally started to feed into Arizona during July and August, giving the state a more normal rainfall pattern. Tropical storm Frank also added this moisture during the month of August.

The month of September saw moisture from another tropical storm ... this time tropical storm former hurricane Isis. This storm did drop a considerable amount of rainfall over the western half of September as well as moderate amounts of rain in northern and southeast Arizona in early September. The latter half of September as well as the first half of October remained rather dry, but precipitation picked up the latter half of October.

*Robert Berkovitz
Fire Weather Forecaster*

**F
I
R
E

W
E
A
T
H
E
R

S
U
M
M
A
R
Y**

**National Weather Service
Weather Service Forecast Office
Albuquerque Area Office**

The weather in New Mexico during 1998 was characterized by a shift from the warm and moist El Nino pattern of winter to the drier La Nina pattern of late fall. Despite generally above average precipitation in the winter of 1997/1998, especially across the southern half of the state, the 1998 fire season turned out to have near average wildfire activity.

The year opened with a well established snowpack across the high country, as snow water equivalents ranged from 110 to 140 percent of normal across the northern mountains to 130 to 200 percent of normal across the southern mountains. After a brief dry spell in January, the storm track returned and brought numerous, wet storm systems across the central portion of the state from February through mid-March. Though this continued to increase the snowpack at the highest elevations, warmer than average temperatures hindered late season snowfall on the lower slopes. As a result, the snowpack at elevations below about 9,000 feet was already melting off in many areas by late winter. The spring brought dry and unusually windy conditions, even for New Mexico. Red Flag Warnings were issued every third day, on the average, from April through June. The combination of prolonged windy and dry spring weather after the warmer than usual winter caused rapid melting and evaporation of the snowpack, especially on the lower slopes. The southeast plains entered into high fire danger first, in early April, followed by the remainder of the south and east by mid May, and then lastly the northwest quarter of the state in June.

By the first day of summer, much of the state was in very high to extreme fire danger and burning restrictions were in place in many areas. Record or near record warmth was recorded at numerous locations during the last two weeks of June. Moisture was so lacking across the state that there was virtually no dry lightning activity. When the monsoonal moisture did arrive in early July, it increased so quickly that the usual spell of dry thunderstorm activity that comes with it was bypassed and replaced instead by soaking rains almost immediately. Thus, the extreme fire danger of early summer was significantly mitigated by the second week in July. Precipitation for the remainder of the summer season was somewhat erratic. While rains did occur with some frequency across the mountains, it was not quite as widespread as usual. Meanwhile, much of the eastern plains remained in a moderate drought situation throughout the summer.

Fall brought a return to more fair and stable conditions for the most part. This was broken in October by an unusual dry and windy spell, which brought increased large fire activity around mid-month. A series of rather wet, early season storm systems followed, from late October through early December, and brought rather widespread precipitation that helped to establish a substantial early season snowpack. However, warm temperatures and a distinct lack of precipitation during the remainder of December left the snowpack averaging below normal by the end of the year.

Chuck Maxwell
Fire Weather Forecaster